

CLAIMS

I claim:

1. A stitch-bonded elastic composite comprising a non-fibrous elastic sheet, stitch-bonded with substantially inextensible yarns, wherein the composite can elastically recover from 10-100% stretch within 5%, in at least one direction.
2. The stitch-bonded elastic composite of claim 1, wherein the stitched yarn network allows stretch beyond as-stitched dimensions of 10-100%, in at least one direction.
3. The stitch-bonded elastic composite of claim 1, wherein the composite has an elastic modulus in the stretch direction of less than about 400 grams per centimeter width per 10% stretch.
4. The stitch-bonded elastic composite of claim 1, wherein the elastic sheet has a boil-off shrinkage in any direction of less than about 10%.
5. The stitch-bonded elastic composite of claim 1, wherein the elastic sheet comprises a polyolefin sheet.
6. The stitch-bonded elastic composite of claim 5, wherein the polyolefin sheet comprises polyethylene or polypropylene.
7. The stitch-bonded elastic composite of claim 5, wherein the basis weight of the polyolefin sheet is in a range of about 20 grams/m² to about 120 grams/m².
8. The stitch-bonded elastic composite of claim 1, wherein the elastic sheet comprises polyurethane.
9. The stitch-bonded elastic composite of claim 8, wherein the basis weight of the polyurethane sheet is in a range of about 20 grams/m² to about 100 grams/m².

10. The stitch-bonded elastic composite of claim 1, wherein the elastic sheet is non-continuous.
- 5 11. The stitch-bonded elastic composite of claim 10, wherein the elastic sheet is perforated.
12. The stitch-bonded elastic composite of claim 1, wherein the stitched yarns comprise hard/nonelastomeric flat or textured yarns.
- 10 13. The stitch-bonded elastic composite of claim 1, wherein the stretch is in the cross direction.
14. The stitch-bonded elastic composite of claim 13, wherein the stretch is also in the machine direction.
- 15 15. The stitch-bonded elastic composite of claim 1, wherein the stretch is in the machine direction.
16. The stitch-bonded elastic composite of claim 1, wherein the yarn system comprises Ripple, Atlas, or Tricot pattern.
- 20 17. The stitch-bonded elastic composite of claim 1, wherein the elastic sheet comprises of more than about half of the composite's weight.
18. The stitch-bonded elastic composite of claim 1, wherein the composite is partially
- 25 exposed on its technical back.
19. The stitch-bonded elastic composite of claim 1, wherein the composite is fully covered with yarn overlaps on its technical back.
- 30 20. The stitch-bonded elastic composite of claim 1, wherein the basis weight of the composite is in a range of about 70 to about 350 grams/m².

21. The stitch-bonded elastic composite of claim 1 further comprises a fibrous layer stitch-bonded to the elastic sheet.

5 22. The stitch-bonded elastic composite of claim 21, wherein the fibrous layer is on top of the elastic sheet.

23. The stitch-bonded elastic composite of claim 21, wherein the fibrous layer is on the bottom of the elastic sheet.

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24. The stitch-bonded elastic composite of claim 1, wherein the elastic sheet comprises fillers.

15 25. The stitch-bonded elastic composite of claim 24, wherein the fillers comprises fibers, fibrils, dust or powders.

26. The stitch-bonded elastic composite of claim 24, wherein the fillers comprise glass, metal, carbonaceous or polymeric materials.

20 27. The stitch-bonded elastic composite of claim 1, wherein the elastic sheet is capable of shrinking up to about 35% after being heat treated and remains elastic.

28. The stitch-bonded elastic composite of claim 1 being embossed.

25 29. The stitch-bonded elastic composite of claim 1 being laminated to another layer by melting the elastic sheet.

30. The stitch-bonded elastic composite of claim 29, wherein the laminate comprises a smooth surface.

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31. A stitch-bonded elastic composite comprising a non-fibrous elastic sheet, stitch-bonded with a substantially inextensible yarn, wherein the composite has an elastic modulus in the stretch direction of less than about 400 grams per centimeter width per 10% stretch.
- 5 32. A stitch-bonded elastic composite comprising a non-fibrous elastic sheet, stitch-bonded with a substantially inextensible yarn, wherein the elastic sheet has a boil-off shrinkage in any direction of less than about 10%.